

ABSTRACT

A heat-resistant cast steel excellent in high-temperature strength, aged ductility and creep rupture strength for use as a material for steam reforming reaction tubes in fuel cell hydrogen generation systems and the like. The cast steel has a chemical composition comprising, in mass %, 0.1 to 0.5% of C, up to 2.5% of Si, up to 2.5% of Mn, 15 to 26% of Cr, 8 to 23% of Ni, 0.1 to 1.2% of Nb, 0.01 to 1.0% of Ti, 0.001 to 0.15% of Ce, up to 0.06% of N and the balance substantially Fe, the cast steel being 20 to 45 in the parameter value P calculated from the expression:

$$P = 89.3 - 78.4C + 0.1Si - 5.7Mn - 1.7Cr \\ + 0.01Ni + 2Nb + 5.3Ti - 36.5N - 50.8Ce.$$

When desired, the steel contains at least one of 0.001 to 0.05% of B, 0.01 to 0.5% of Zr and 0.001 to 0.15% of La, and/or 0.01 to 0.3% of Al. Further when desired, the C, Cr and Ni contents are limited to 0.1 to 0.3% of C, 15 to 20% of Cr and 8 to 18% of Ni.